Name:

at1119paper: Complete the Square, $b =$ odd (v519)

Example

By completing the square, find both solutions to the given equation:

$$x^2 - 35x = -264$$

Add $\left(\frac{-35}{2}\right)^2$, which equals $\frac{1225}{4}$, to both sides of the equation.

$$x^2 - 35x + \frac{1225}{4} = \frac{169}{4}$$

Factor the left side.

$$\left(x + \frac{-35}{2}\right)^2 = \frac{169}{4}$$

Undo the squaring.

$$x + \frac{-35}{2} = \frac{-13}{2} \quad \text{or} \quad x + \frac{-35}{2} = \frac{13}{2}$$
$$x = \frac{35 - 13}{2} \quad \text{or} \quad x = \frac{35 + 13}{2}$$
$$x = 11 \quad \text{or} \quad x = 24$$

Question 1

By completing the square, find both solutions to the given equation:

$$x^2 + 23x = 78$$

Question 2

By completing the square, find both solutions to the given equation:

$$x^2 - 25x \;=\; 1034$$

Question 3

By completing the square, find both solutions to the given equation:

$$x^2 + 5x \;=\; 66$$